

## Short User Manual for ChiralTek HLE Cartridges

Please visit English website <http://chiraltek-column.com/Downloads.php> for downloading the full product manual and application notes for the HLE cartridges.

All the ChiralTek HLE cartridges have been passed the sampling detection and quality control tests. Please kindly refer to the “Certificate of Quality Control Analysis” for information about the testing results. Please carefully read this short user manual before using the HLE cartridges.

### 1. Unique Characteristics for HLE Cartridges

The Hydrophilic and Lipophilic Extraction (HLE) cartridges are a new type of universal solid phase extraction (SPE) cartridges manufactured by ChiralTek. The HLE particle was prepared through a specially-designed procedure by bonding multiple chemical function groups, including Diol, C18 (ODS), vinylpyrrolidone and divinylbenzene (HLB) etc., onto a special type of porous composite material. By using a ChiralTek proprietary packing approach, the HLE particles were then packed into kinds of polypropylene tubes with different sizes to produce different model of HLE cartridge products. The following Figure (A) shows a typical photo of model HLE-80 cartridges.



Figure(A). Typical Photo for HLE-80 cartridges

The above HLE-80 model cartridges (specification: 80 mg/3mL, 80-120Å, 50 PCs/pkg) are suitable for extraction of small volume samples (0.5 – 50mL).

Since this novel HLE cartridges contains multiple chemical function groups, they can be used under traditional normal and reverse phase elution conditions and modern gradient elution conditions to extract types of hydrophilic and lipophilic compounds from complicated samples.

When worked with automatic SPE instruments, the HLE cartridges can be used to easily achieve high efficient sample treatments for different types of complicated samples. Another model HLE-300 cartridges (as shown in Figure (B)) are suitable for median volume samples (50 – 500mL). The HLE-1000 model cartridges are designed for large volume samples (500mL and above).



Figure(B). Typical Photo for HLE-300 cartridges

The HLE cartridges can also be used as direct replacement of Waters HLB cartridges due to functioning of vinylpyrrolidone and divinylbenzene groups in the HLE particles.

### 2. Application and Requirements

Multiple elution modes, including gradient elution, can be used to extract and purify different types of small molecular compounds in the samples due to the multiple chemical function groups available in the HLE cartridges. The single HLE cartridge can also be used to fractionate the complicated sample into different groups of compounds according to the polarity, hydrophilic, and lipophilic abilities by using multiple mode elution approaches. It is strongly recommended to use 100% isopropyl alcohol (IPA) as the intermediate solvent when switching

between hydrophilic and lipophilic elution conditions.

Since the single HLE cartridge contains Diol, C18 (ODS), vinylpyrrolidone and divinylbenzene (HLB) groups, the high-capacity cartridge, e.g., HLE-1000 and HLE-2000 cartridges etc., can be used as multiple functional Flash chromatographic column for separation and purification of complicated samples, such as Traditional Chinese Medicinal herbs and other nature products, when worked with kinds of automatic SPE instruments.

### 3. Considerations for Storage of HLE Cartridges

The finished products of the HLE cartridges were packed into light-tight anti-static bags under nitrogen. The originally-sealed HLE cartridges can be stored for a quite long time (several years) at room temperature.

The HLE cartridges could be stored for six months in a cool and ventilated dark place after

opening the original sealing package.

The external packing plastic box for HLE cartridges is strong in compression. The end users are strongly recommended to use the original external packing box from ChiralTek for storing the HLE cartridges and try to avoid any external force extrusion.

### 4. Notice and Other Considerations

The HLE cartridges can be used under traditional normal and reverse phase elution conditions and modern gradient elution conditions. However, it is strongly recommended to use 100% isopropyl alcohol (IPA) as the intermediate solvent when switching between hydrophilic and lipophilic elution solvents.

Since the strong alkalic compounds (e.g., NaOH) can cause damages to the HLE column bed, they cannot be used as elution solution additives or sample solution additives.

The HLE column bed will be changed to light yellow colour after conditioning with isopropyl

alcohol or methanol. This light yellow colour is normal for the composite particles. The HLE column wall is made from polypropylene. The two frits are made from polyethylene. Most of the common normal phase and reversed phase elution solvents are compatible with the polypropylene and polyethylene materials. If non-standard solvents are needed for elution, please contact ChiralTek for technical support.

The HLE cartridges have many different models with different specifications and column capacities. Please choose proper model according to the sample volume and total concentration of all possible compounds in the sample.

### 5. List of the HLE Cartridges with Different Specifications

Product List of ChiralTek HLE Universal Cartridges			
Product No.	Model	Specification	Remarks
880-HLE-80	HLE-80	80mg/3mL, 80-120Å, 50 PCs/box	For small volume samples (0.5 - 50mL)
880-HLE-150	HLE-150	150mg/3mL, 80-120Å, 50 PCs/box	For small volume samples (0.5 - 50mL)
880-HLE-300	HLE-300	300mg/6mL, 80-120Å, 20 PCs/box	For median volume samples (50 - 500mL)
880-HLE-1000	HLE-1000	1000mg/6mL, 80-120Å, 20 PCs/box	For large volume samples ( 500-1000mL)
880-HLE-2000	HLE-2000	2000mg/12mL, 80-120Å, 10 PCs/box	For very large volume samples (1000mL and above)

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Please call an international phone number (+65)-93656129 to directly contact the ChiralTek technical support team in Singapore. You also can call a special local phone number (+86)-95040358310 in the mainland of China to directly contact ChiralTek technical support team in Singapore.